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ABSTRACT

This study investigated the relationship between aptitude, as measured by Defense Language Aptitude Battery (DLAB) scores, and oral proficiency as measured by the Oral Proficiency Interview (OPI) scores of 72 Federal Bureau of Investigation (FBI) Special Agents who completed basic foreign language training at the Defense Language Institute (DLI). The hypothesis that the DLAB is a predictor of proficiency levels resulting from DLI training was not strongly sustained, as 40% of the Special Agents fell below the level 2 training goal, and because many of the Special Agents who received low OPI scores received the highest aptitude scores. Self-assessment data on their language learning success were collected from 76 former students, and the following factors were identified as most influential to success: (1) motivation/perseverance; (2) instructor; and (3) personal ability/aptitude. Factors having a negative influence on language learning success included: (1) poor quality of materials; and (2) inappropriate grammar/vocabulary. (DJD)

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Aptitude and Language Learning of FBI Special Agents

Federal Bureau of Investigation

Laboratory Division

Language Services Unit

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The information in this paper formed the foundation for the FBI's portion of a Panel Presentation: The Uses and Limitations of Aptitude Testing in Various Agencies, at the Interagency Language Roundtable Invitational Symposium on Language Aptitude Testing.

September 14, 1988

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Foreword

The FBI Honors Intern Program started in 1985. Every year, Honors Interns have been assigned to the Language Services Unit (LSU), Laboratory Division. In 1988, two Honors Interns were assigned to LSU. Miss Margaret Williams, a senior at Smith College, was one of the two. The following paper was originally conceived as a research project to be carried out by Miss Williams, under my direction. Her task was to collect and compile all the data and to write several papers about different aspects of related research. The collecting of the data was a painstaking and frustrating task. The bulk of the data relating to the students and the instructional programs was provided by LSU's Training Program Manager, Elizabeth Porcell. The Training Program has only been computerized a little over two years; thus, data for the total time span of the research, 1981-1988, had to come from personnel files and other hard copies of materials kept in LSU files. DLAB data have never been computerized, and the hard copy files go back twenty years or more, often containing unclear and incomplete information of aptitude testing instruments, scores and dates. In spite of these obstacles, Miss Williams was able to find all available data.

Miss Williams and I traveled to the Defense Language Institute (DLI) and met with Dr. John Lett, Victor Shaw and other DLI personnel in the area of testing. Computer printouts received from Victor Shaw literally arrived on the last day of Miss Williams' internship. She was able to write a rough draft primer for the present paper.

Throughout the summer, Miss Williams closely collaborated with Contract Linguist Olga Navarrete. Mrs. Navarrete's experience as a trained oral proficiency tester and as a former foreign-language teacher allowed her to provide Miss Williams with the day-to-day linguistic and statistical expertise needed for this project. Mrs. Navarrete conceived and designed most of the graphical representations contained in this paper. She calculated and double-checked all the figures contained herein, in addition to coauthoring many of the portions of the final paper with me.

Our thanks go to Mr. Eugene Nakada, who did all the computer graphics, Mrs. Margaret Gulotta, LSU's Field Operations Program Manager, and to personnel at DLI for their assistance. I would also like to thank Mr. Kent Essick for his support as my greatest critic and his valuable assistance as a meticulous proofreader.

In conclusion, I would like to say that this research paper would not have come about without the recognition by the Unit Chief of the Language Services Unit, SSA Bryce Christensen, of the necessity and importance of a study of this subject.

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Language Services Unit
Laboratory Division

APTITUDE AND LANGUAGE LEARNING OF FBI SPECIAL AGENTS

For many years, the FBI has used Defense Language Aptitude Battery (DLAB) scores as one of the factors in the selection of FBI Special Agents (SAs) for **basic** foreign-language training at the Defense Language Institute (DLI). This is due to the fact that DLI uses this instrument in its selection of military personnel for foreign-language training at this facility. DLI, the developer of the DLAB, has conducted validation studies which indicate that the DLAB is a valid predictor of success in the acquisition of a foreign language. In the DLI publication "The Defense Language Aptitude Battery" (1976), Peterson and Al-Haik clearly demonstrated the high correlation between DLAB scores and final scores at the end of training. The DLAB was found to be an extremely good predictor of success in Russian, but the researchers also found that the DLAB's overall effectiveness as a predictor in all languages "produced consistently higher validities than other predictors." (p. 3) Other researchers have found that "aptitude test scores are reliable predictors of success by individuals (adolescents and adults) in learning a second language." (Child and Parry, "Preliminary Investigation of the Relationship between VORD, MLAT1 and Language Proficiency.") The latter study revealed "significant mild correlations between performance on the MLAT (composite scores) and speaking proficiency ...." (p. 16) Similar correlations were found regarding VORD. Charles Stansfield's correlation study of the Pimsleur Language Aptitude Battery and end-of-course achievement tests found a median correlation of .54. (Stansfield, "Pimsleur Language Aptitude Battery," p. 7.)

The aim of our research is to show the relationship, if any, between aptitude as measured by DLAB scores and oral proficiency as measured by the Oral Proficiency Interview (OPI) scores of FBI Special Agents who completed **basic** foreign-language training at DLI. Our primary research question and two secondary questions were: 1) Is the DLAB a predictor of success in foreign-language learning as measured by OPI scores? 2) What other variables affect these outcomes as well? 3) What does the student feel contributes to his success? Our starting hypothesis was that there is a moderate correlation between the DLAB and oral-proficiency outcomes. Our second hypothesis merely stated that other variables do play a role in the overall learning process, but no attempt was made to measure the relative weight of such variables. And finally, we wanted to query the students for opinions as to what contributed to their successful language learning.

The DLAB was introduced in 1977. It was developed under the direction of Dr. Antoine R. Al-Haik, Chief of Test Development and Validation at DLI, for the purpose of screening military personnel for foreign-language training. The artificial language of the DLAB is loosely based on English and tests both inductive and deductive learning ability. The 126-item test is divided into four parts: Part I is a biographical inventory, Part II tests recognition of stress patterns, Part III tests for foreign-language grammar. It is divided into four sections: Section I deals with nouns and adjectives, Section II tests possessive forms, Section III deals with sentence structure, and Section IV requires the use of a combination of the rules introduced in the previous three sections. Part IV, Foreign Language Concept Formation, requires the examinee to form language concepts from pictures and identify the text which correctly conveys what he sees in the picture by generalizing from the information acquired from the top of the page. (For a complete description, read The Defense Language Aptitude Battery (1976).) Raw scores are converted to standard scores, and cutting scores vary for each language category. The FBI has used this instrument, with the same cutting scores as DLI.

Design and Method

Until the present study, no research had been done to quantify the results of testing and training in the FBI, and records had been kept rather haphazardly. Our original sample consisted of 106 subjects, all Special Agents, male and female, ranging in age from 25 to 50, who attended basic foreign-language courses at DLI between 1981and 1988. Only the 72 SAs, all current FBI employees, with known DLAB and OPI scores were used for this study. They were divided into groups according to the DLI division of language categories: I (Italian, Italian-Sicilian) - 19 subjects; III (Polish, Vietnamese, Russian, Czech) - 26 subjects; and, IV (Arabic, Korean, and Chinese-Mandarin) - 27 subjects. There were not enough subjects in Category II. Students in Category I attended DLI for 36 weeks, and students in Categories III and IV attended for 47 weeks.

The collection of data was a slow and difficult process. Information was incomplete, unclear and fragmented, probably due to the fact that aptitude tests were administered by different divisions in the Bureau, until the Language Services Unit (LSU) assumed this duty in 1986. Only clearly identified DLAB test data have

been used for the purpose of this study. Five SAs had taken the DLAB twice, and the second score was used. OPI score data were incomplete as well. Some graduates from the basic course were never tested by the FBI, or they were tested after a considerable time period, which may have impacted on proficiency. Hence, only OPI scores obtained soon after completion of basic training were used for this study. In some instances, when no FBI OPI scores were available, OPI scores from DLI were used. Due to the problems in data collection, as well as other resource constraints, we kept the construct simple by expressing most of the quantified information in percentages.

Findings

The mean, mode and median of the DLAB and the OPI scores obtained by SAs were distributed as follows:

Figure 1

DLAB	Mean	Mode	Median
Category I	108	102	105
Category III	122	132	123
Category IV	121	107	117
Categories I, III, IV	116	132	118

DLAB Scores

Figure 2

OPI	Mean	Mode	Median
Category I	2	2 +	2
Category III	2	1 +	2
Category IV	1 +	2	2
Categories I, III, IV	2	2/2 +	2

OPI Scores

In the process of the investigation, we found that the OPI scores in the combined three language categories ranged from 0 + to 3. The distribution of scores showed some interesting patterns.

Category I: The greatest number (7 out of 19), or 37%, scored a 2 + . Twenty-six percent scored a 2. Only one subject scored a 3 (representing 5% of the group).
Category III: Nine out of 26 (35%), or the mode, fell in the 1 + range. The one 0 + score in this group was the lowest OPI score in the entire study.
Category IV: The mode for this category was level 2 (8 out of 27, or 30%). In this group no student achieved a level 3.

From the combined total, only 10% of the 72 Agents achieved minimum professional proficiency --a 3--. Fifty percent, comprising both the median and the mode, received a 2 or a 2 + (25% each). (DLI's goal is to train to level 2.) Hence, forty percent fell below the desired goal. (During the combined years of '85, '86, and '87, 32% of DLI graduates in the combined Categories I, III, and IV, mostly enlisted personnel in their late teens or early twenties, with no college education, scored the desired 2 or above on the OPI.)

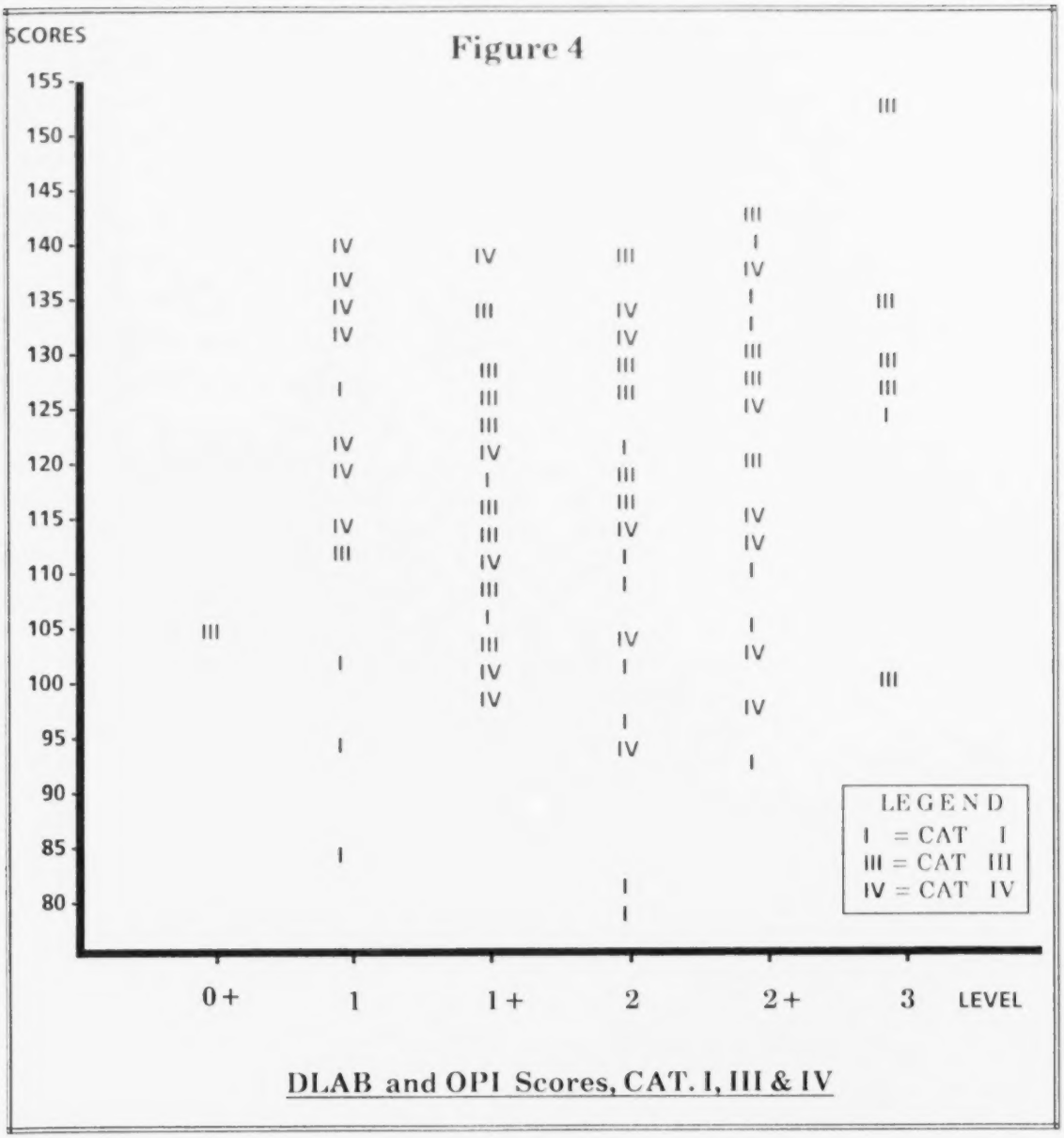
Figure 3

	0	0 +	1	1 +	2	2 +	3
Category I (n 19)	0%	0%	21%	11%	26%	**37%**	5%
Category III (n 26)	0%	4%	4%	**35%**	19%	15%	23%
Category IV (n 27)	0%	0%	26%	18%	**30%**	26%	0%
Totals, Categories I, III, IV (N 72)	0%	1%	17%	22%	**25%**	**25%**	10%

OPI Percentile Distribution

The hypothesis that the DLAB is a predictor of proficiency outcomes resulting from DLI training was not strongly sustained, as shown by the fluctuating correlations between the DLAB scores and the OPI outcomes. In some cases, candidates with the highest aptitude scores received low OPI scores, while some who had barely surpassed the cutting score performed extremely well.

--Figure 4. Scatterplot Categories I, III, IV (below)--

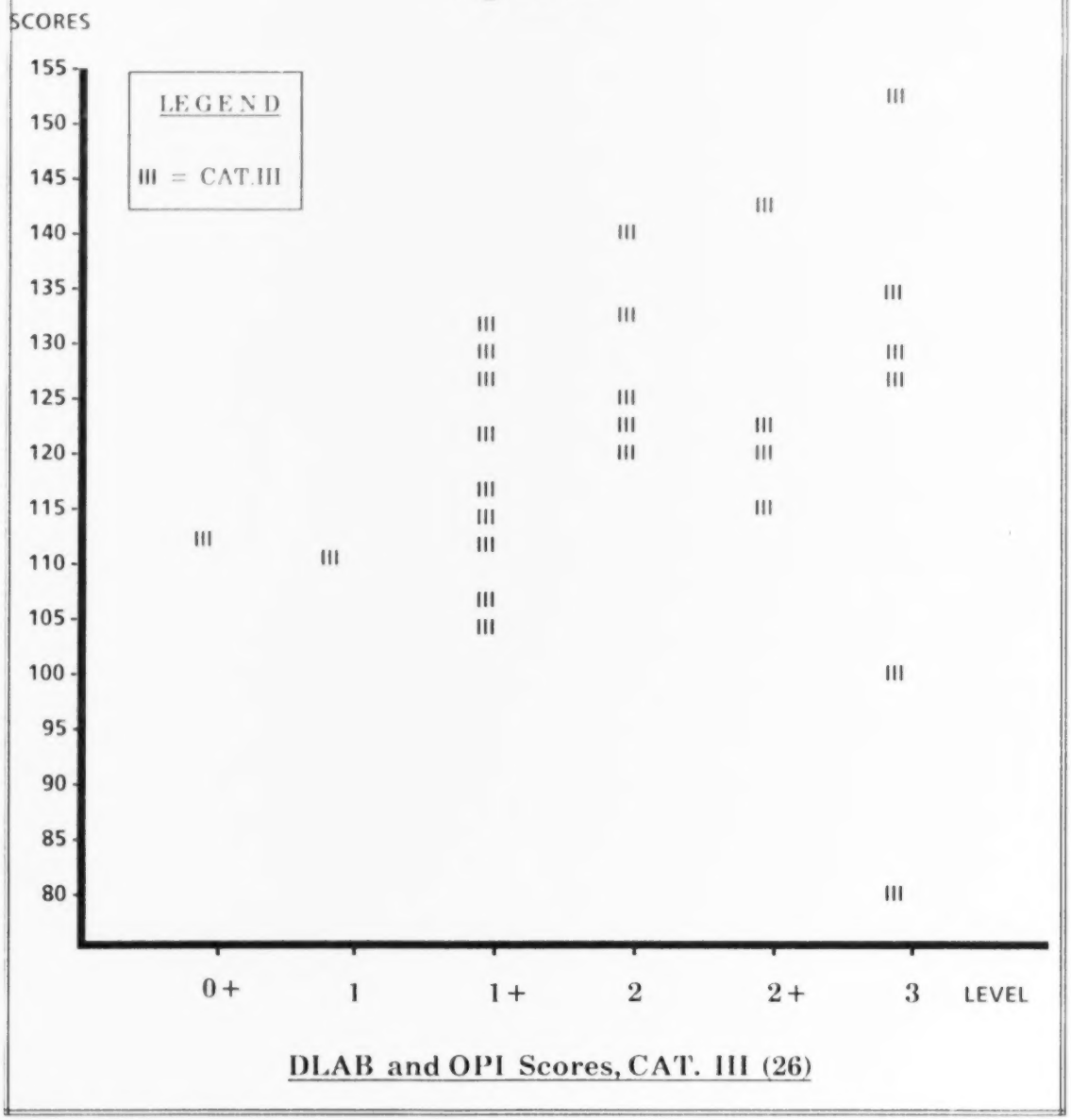


A moderate correlation between high DLAB scores and high OPI scores is only demonstrated in the graphical representation of Language Category III.

--Figure 5. Scatterplot Category III (below)--

There was no discernible positive correlation between DLAB and oral-proficiency scores in Categories I and IV.

Figure 5



DLAB and OPI Scores, CAT. III (26)

9

Other Variables

The FBI bases selection of SAs for basic training on a variety of factors, besides the DLAB. The Agent's initial application for language training must be voluntary. The Agent must have worked in the Bureau for at least two years, indicating that he has experience in investigative work. He must have Fully Successful performance ratings, or better, along with authorization for training from his Special Agent in Charge or Assistant Special Agent in Charge. The FBI also takes into account the Agent's ability to accept a transfer after training; the Agent must show that the desire to attend DLI is not actually an avoidance of some other undesired field office.

In addition to the above, the FBI gives priority to an Agent who has had past language-learning experience, which may include formal foreign language instruction in high school or college or in-country learning, or preferably both. In addition, an Agent's college grade-point average is given consideration, since it may be indicative of his ability and motivation in past academic pursuits, as may be advanced degrees.

Findings Concerning Variables

Regarding the secondary research question concerning variables other than aptitude having a bearing on the language-learning process, this study has only identified the selection criteria currently used to identify SAs for basic training, and no attempt has been made to measure their relative direct or indirect contribution to the overall successful acquisition of a foreign language, or how these factors may affect proficiency outcomes. Other possible variables such as age, gender, etc. are not considered in the selection process, nor do we know what role these factors may possibly play in foreign-language learning.

The FBI Special Agent Language Learner

Based on Carroll's "1971 Model of Foreign Language Learning" and John Lett's adaptation of this, the "1986 DLI Model of Foreign Language Learning," the researchers developed a questionnaire to get student observations concerning the

variables in these models, and what they felt contributed to or detracted from their progress in **basic** foreign-language training. (The questionnaire has been appended to this paper.) Questionnaires were sent to the 106 SAs originally identified as having received **basic** foreign-language training during the period of 1981 through 1988; 76 responded. All responses were collated and quantified. The students identified other factors, besides the variables mentioned in the models, as having a bearing on the overall learning process. The data regarding the most influential learner factors collected from the FBI students strongly reflected the variance contribution of learner factors cited by Jakobovits based on a study by Carroll, 1965; Carroll and Sapon, 1959; Flaugher, 1967; Gardner and Lambert, 1969; Pimsleur, Sundland, and Mc Intyre, 1964.

Variable	*Percent of variance explained*
Aptitude	33
Intelligence	20
Perseverance or motivation	33
Others	14

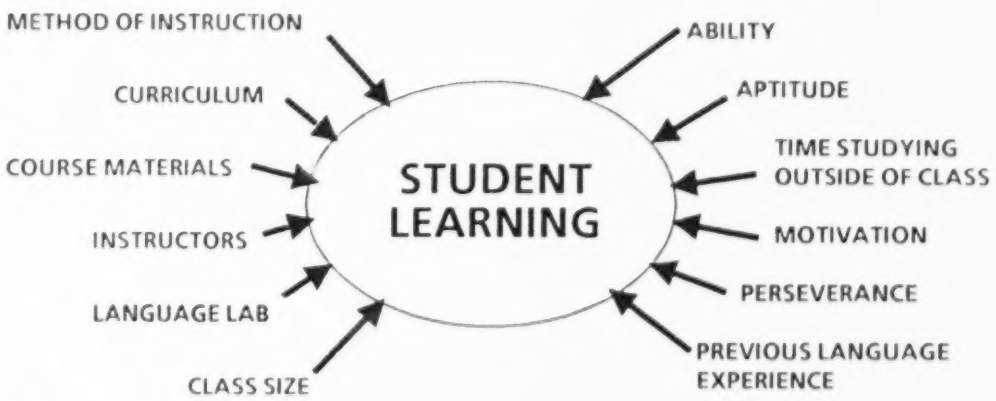
(Leon A. Jakobovits, Foreign Language Learning: A Psycholinguistic Analysis of the Issues, p. 98.)

Jakobovits does point out that the numbers in this table are only an approximation. He also points out that grade-point average includes both intelligence and perseverance and hence may contribute up to 50% overall, especially since grade-point average also is part of ability/aptitude.

The "1988 FBI Model of Foreign Language Learning," based on student response, can be represented as follows:

--Figure 6. 1988 FBI Model of Foreign Language Learning (p. 9)--

Figure 6



*Based on FBI students' responses (N76)

1988 FBI Model of Foreign Language Learning*

Findings Concerning Student Opinion

When asked to identify the most influential factors contributing to their language learning success, 78% of the total number of students chose motivation/perseverance, followed by 47% listing the instructor as playing an important positive role in the overall learning process. Personal ability/aptitude was selected by only 39 percent of the students as a positive factor aiding in successful language learning. Factors having a negative bearing on successful

language learning were identified as well. The following graphic representation shows the students' perception of positive and negative factors affecting their language learning.

--Figure 7. Combined Student Perception of Positive and Negative Factors (p. 11)--

Category I students followed a similar pattern, listing personal motivation/perseverance as the most important positive factor having a bearing on language learning (59%). Poor quality of materials was chosen as negatively affecting language learning (47%).

--Figure 8. Category I Positive and Negative Factors (p. 12)--

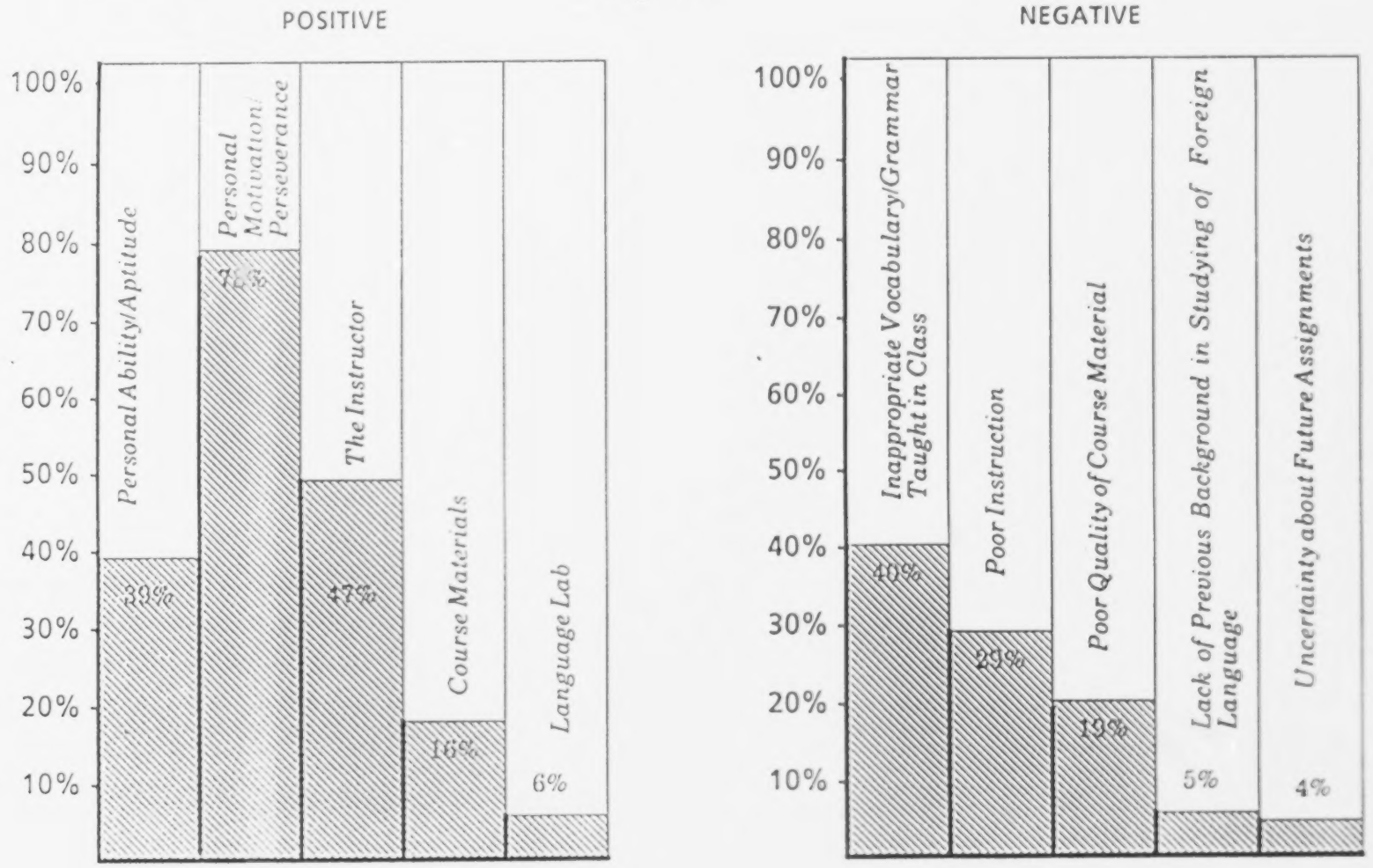
Seventy-two percent of the students in Category III chose personal ability/aptitude as the greatest positive factor. Twenty-eight percent felt that inappropriate vocabulary/grammar taught in class negatively affected their language learning, and 28% cited poor quality of course materials as a negative factor.

--Figure 9. Category III Positive and Negative Factors (p. 13)--

In Category IV, 100% of the students listed personal motivation/perseverance and only 10% chose personal ability/aptitude as the influential factors leading to successful language learning. Negative factors followed a pattern similar to Category III.

--Figure 10. Category IV Positive and Negative Factors (p. 14)--

Figure 7

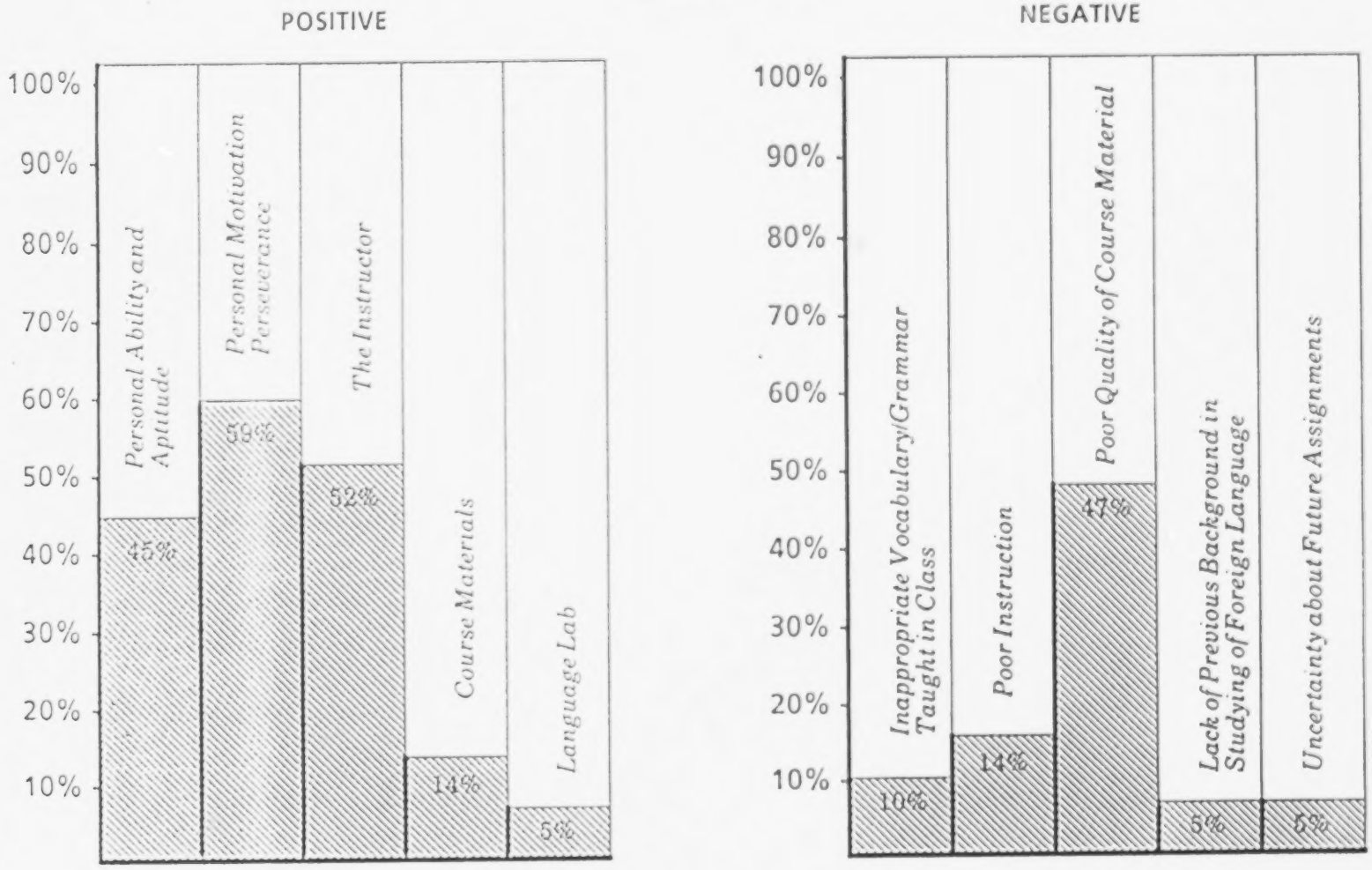


Factors Affecting Language Learning Based on Student Perception*

*From a survey of Special Agents who attended DLI from 1981 - 1988

CATEGORY I, III, IV

Figure 8

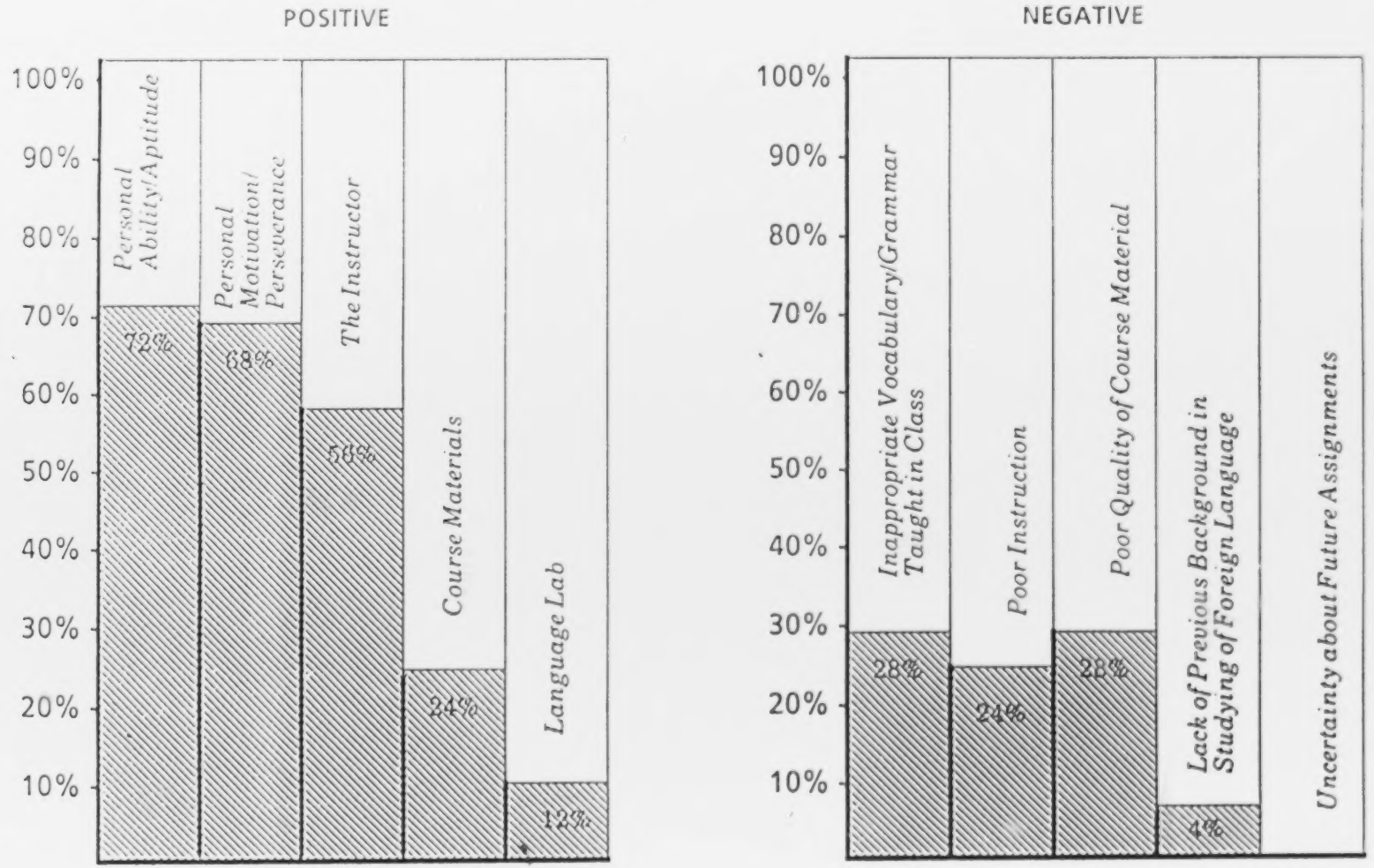


Factors Affecting Language Learning Based on Student Perception*

*From a survey of Special Agents who attended DLI from 1981 - 1988

CATEGORY I

Figure 9

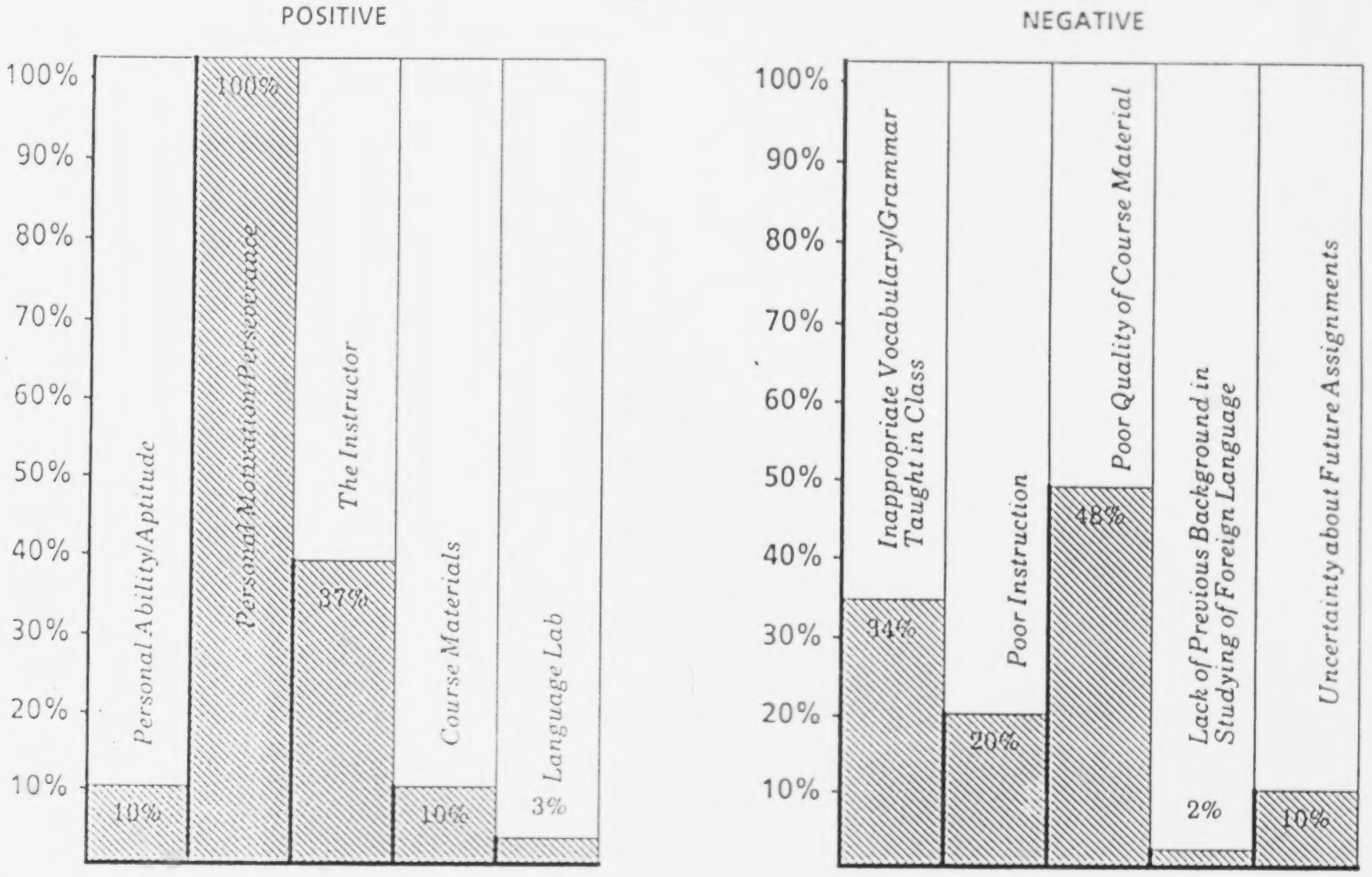


Factors Affecting Language Learning Based on Student Perception*

*From a survey of Special Agents who attended DLI from 1981 - 1988

CATEGORY III

Figure 10



Factors Affecting Language Learning Based on Student Perception*

*From a survey of Special Agents who attended DLI from 1981 - 1988

CATEGORY IV

Conclusion and Recommendation

This research attempted to answer the question to what extent DLAB scores predict oral-proficiency outcomes resulting from **basic** language training at DLI. Selection criteria (in addition to the DLAB) provided by the Training Program Manager, and learner factors checked by the FBI students in the questionnaires have been identified as variables which possibly may have a bearing on the overall outcome of such training. The present construct was rather unsophisticated in terms of statistical procedures. Due to the less-than-ideal sample size in each language category and the problems in gathering the data, continued collection of exact data, with good retrieval possibilities, will facilitate a more exact study in the future. Such data should be automated in order to do a computer analysis for exact statistical information. Such information will assist in the selection process as well as in determining the effectiveness of DLI training. It is imperative that the FBI have the means of selecting the best possible students and placing them in the best possible foreign-language training programs.

Due to the important role of other variables, the DLAB should be used with caution and should not be the main selection factor in determining which personnel should receive foreign-language training at DLI . In the findings graphically represented in figures 7-10, it appears that motivation plays an equal or greater role in the acquisition of a second language, and hence, it may be wise to have a motivational inventory/questionnaire incorporated into the selection process. Additional research needs to be carried out to determine the weight of other variables affecting the outcome of language training/learning, such as age, sex, learner and cognitive styles/strategies, etc. The results of such research may aid in selecting students most likely to attain desired proficiency levels in the best possible instructional program, and thus provide the FBI, in a cost-effective manner, with SAs with usable skills to carry out the overall FBI foreign-language mandate. Further research needs to answer the questions of what constitutes aptitude, how it can be measured, and the overall role it plays in successful language learning.

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INSTRUCTIONS: Please take a few moments to fill out this brief survey regarding your language training at DLI and relevant information. If you wish to add comments on any topic, there is space provided after each question and at the end of the survey. As soon as you have completed it, send it back in the enclosed envelope. Thank you for your time

QUESTIONNAIRE
(check or respond as appropriate)

NAME_____ LANGUAGE_____

COURSE LEVEL AND DATES OF ATTENDANCE:

BASIC_____ INTERMEDIATE_____ ADVANCED_____

NATIVE LANGUAGE_____

AGE___SEX___MARITAL STATUS: Single___Married___Divorced___Widowed___

PREVIOUS LANGUAGE EXPERIENCE:

Language	Where learned	Years learned
_____	_____	_____
_____	_____	_____

LEVEL OF EDUCATION:
Bachelor's____Master's____Other_____ In what field?_____

Defense Language Aptitude Battery (DLAB) score (if known)_____

Oral Proficiency Test score (if applicable)_____
Administered by FBI_____ DLI_____

* * * * * * * * * * * * * *

1. DO YOU THINK YOUR DLAB SCORE IS REFLECTIVE OF YOUR ABILITY TO LEARN LANGUAGES?
   Yes____ No____ Don't know____

2. THE PACE OF THE COURSE WAS
   Just right____ Too slow____ Too fast____

3. RATE THE EMPHASIS ON THE FOLLOWING AREAS

	Just right	Too much	Too little
Grammar	_____	_____	_____
Vocabulary	_____	_____	_____
Oral drills	_____	_____	_____
Culture	_____	_____	_____

4 RATE THE AMOUNT OF PRACTICE IN THE FOLLOWING AREAS

	Just right	Too much	Too little
In Writing	_____	_____	_____
In Reading	_____	_____	_____
In Speaking	_____	_____	_____
In Listening	_____	_____	_____

5 THE MOST DIFFICULT ASPECT(S) OF THE LANGUAGE WAS/WERE

Grammar	_____	Reading comprehension	_____
Vocabulary	_____	Listening	_____
Speaking	_____	Other:	

6. THE EASIEST ASPECT(S) OF THE LANGUAGE WAS/WERE

Grammar	_____	Reading comprehension	_____
Vocabulary	_____	Listening	_____
Speaking	_____	Other:	

7.a) HOW MANY HOURS OUTSIDE OF CLASS PER DAY DID YOU WORK ON LEARNING THE LANGUAGE?_____

b) YOU FEEL THAT THIS WAS Sufficient ____ Too little ____ Too much ____

8.a) THE AMOUNT OF ENGLISH USED BY THE INSTRUCTOR IN THE CLASSROOM WAS

None	_____
Very little	_____
Only for difficult explanations	_____
Too much	_____

b) I FEEL THE USE OF ENGLISH WAS

____ Beneficial
____ Necessary
____ Inappropriate
____ Distracting

9. YOU WOULD DESCRIBE YOUR OVERALL PROGRESS AS

Excellent _____ Satisfactory _____ Unsatisfactory _____

10. THE FACTOR(S) YOU FEEL CONTRIBUTED MOST TO YOUR SUCCESS IS/ARE

____ Personal ability/aptitude
____ Personal motivation/perseverance
____ The instructor
____ Course materials
____ Language lab
____ Other (explain)_____

11. THE FACTOR(S) YOU FEEL HINDERED YOUR SUCCESS

____ Inappropriate vocabulary/grammar taught in class
____ Poor instruction
____ Poor quality of course materials
____ Lack of previous background in studying a foreign language
____ Uncertainty about future assignments
____ Other demotivators (explain) _____

12. RATE THE OVERALL IMPRESSION YOU HAVE HAD WHILE LEARNING THIS LANGUAGE.

____ 5-Outstanding
____ 4-Above average
____ 3-Average
____ 2-Below average
____ 1-Poor
____ 0

13. PLEASE ADD ANY OTHER COMMENTS ON ANY ASPECT OF YOUR LANGUAGE TRAINING AT DLI.